PTO/PCT Rec'd 30 NOV 1999

FORM PTO-1390 (Modified) (REV 10-95) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 0143-0473-6 PCT

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR): 09/402,472

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR98/00728	April 10, 1998	April 10, 1997

TITLE OF INVENTION

INTERNAL COMBUSTION ENGINE EXHAUST DEVICE AND METHOD FOR MAKING SAME

APPLICANT(S) FOR DO/EO/US

Daniel CELERIER, et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☐ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☒ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☐ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ A copy of the International Search Report (PCT/ISA/210).
8. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409)
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 18 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
    A **SECOND** or **SUBSEQUENT** preliminary amendment.
16. ☐ A substitute specification.
17. ☐ A change of power of attorney and/or address letter.
18. ☐ Certificate of Mailing by Express Mail
19. ☒ Other items or information:

Submission of English Translation and Declaration Under 37 CFR 1.495
Drawings (2 sheets)

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/402,472	PCT/FR98/00728	0143-0473-6 PCT

20. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

		CALCULATIONS PTO USE ONLY
☐ Search Report has been prepared by the EPO or JPO	**$840.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482)	**$670.00**	
☐ No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))	**$760.00**	
☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO	**$970.00**	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)	**$96.00**	
ENTER APPROPRIATE BASIC FEE AMOUNT =		**$0.00**
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).		**$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	7 - 20 =	0	x $18.00	**$0.00**
Independent claims	1 - 3 =	0	x $78.00	**$0.00**
Multiple Dependent Claims **(check if applicable)**.			☐	**$0.00**
TOTAL OF ABOVE CALCULATIONS =				**$0.00**
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable).**			☐	**$0.00**
SUBTOTAL =				**$0.00**
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +				**$0.00**
TOTAL NATIONAL FEE =				**$0.00**
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☐	**$0.00**
TOTAL FEES ENCLOSED =				**$0.00**
			Amount to be: refunded	$
			charged	$

☐ A check in the amount of to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **15-0030** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

OBLON, SPIVAK, McCLELLAND, MAIER & NEUSTADT, P.C.
1755 Jefferson Davis Highway, Fourth Floor
Crystal Square Five
Arlington, Virginia 22202
703-413-3000

WILLIAM E. BEAUMONT
REGISTRATION NUMBER 30,996

SIGNATURE

Gregory J. Maier
NAME

25,599
REGISTRATION NUMBER

November 30, 1999
DATE

DOCKET NO. 0143-0473-6 PCT

PTO/PCT Rec'd 30 NOV 1999
09/402472

IN RE APPLICATION OF: Daniel CELERIER, et al.

SERIAL NO.: 09/402,472

FILED: October 12, 1999

FOR: INTERNAL COMBUSTION ENGINE EXHAUST DEVICE AND METHOD FOR MAKING SAME

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C 20231

Sir.

Transmitted herewith is an amendment in the above-identified application.

☒ No additional fee is required.

☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement previously submitted.

☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 has been established by a verified statement submitted herewith.

☒ Additional documents filed herewith:

PCT Transmittal Letter/Declaration/Drawings 2 sheets
Submission of English Translation and Declaration
English Translation of Specification
Preliminary Amendment

The fee has been calculated as shown below.

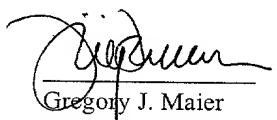
	(Col. 1) CLAIMS REMAINING AFTER		(Col. 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Col. 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDITIONAL FEE	OTHER THAN A SMALL ENTITY RATE	OTHER THAN A SMALL ENTITY ADDITIONAL FEE
TOTAL	* 7	MINUS	** 20	= 0	X9 =	$	X18 =	$ .00
INDEP	* 1	MINUS	*** 3	= 0	X39 =	$	X78 =	$ .00
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM					+130=	$	+260=	$
					TOTAL	$	TOTAL	$ .00

___ A check in the amount of $_____ is attached.

XX Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

XX If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time may be charged to deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No.25,599
William E. Beaumont
Registration No. 30,996

Fourth Floor
1755 Jefferson Davis Highway
Arlington, Virginia 22202
(703) 413-3000

*If the entry in Column 2 is less than the entry in Column 1 write "0" in Column 3.
**If the "Highest Number Previously paid for" IN THIS SPACE is less than 20 write "20" in this space.
***If the "Highest Number Previously paid for" IN THIS SPACE is less than 3 write "3" in this space.

7/93

0143-0473-6 PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :

DANIEL CELERIER ET AL : ATTN: NEW APPLICATION DIVISION

SERIAL NO: 09/402,472
(Based on PCT/FR98/00728)

FILED: OCTOBER 12, 1999 :

FOR: INTERNAL COMBUSTION :
ENGINE EXHAUST DEVICE AND
METHOD FOR MAKING SAME

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Preliminary to any action on the merits, please amend the above-identified application as follows:

IN THE SPECIFICATION

Page 1, between lines 2 and 3, insert

--BACKGROUND OF THE INVENTION

--Field of the Invention--;

between lines 8 and 9, insert

--Discussion of the Background--.

Page 2, between lines 23 and 24, insert

--SUMMARY OF THE INVENTION--.

Page 4, between lines 8 and 9, insert

--BRIEF DESCRIPTION OF THE DRAWINGS--;

between lines 19 and 20, insert

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--.

IN THE CLAIMS

Claim 1, line 1, change "[1]" to --1.--;

line 2, delete "(1)";

line 3, delete "(1)";

line 4, delete "(2)";

line 6, delete "(2)"; same line, delete "(3)";

line 8, delete '"(1)"; same line, delete "(2)".

Claim 2, line 1, change "[2]" to --2.--;

line 3, delete "(1)".

Claim 3, line 1, change "[3]" to --3.--;

line 2, change "any one of claims 1 to 2" to --claim 1--;

line 3, delete "(1)".

Claim 4, line 1, change "[4]" to --4.--;

line 2, change "any of claims 1-3" to --claim 1--.

Please add new Claims 5-7 as follows:

--5. An exhaust device for internal combustion engines according to claim 2, characterized in that the said pipe element is provided with a wall made of stainless metal alloy.

6. A process of making an exhaust device according to claim 2, characterized in that the said tool comprises an ogival mandrel.

7. A process of making an exhaust device according to claim 3, characterized in that the said tool comprises an ogival mandrel.--

IN THE ABSTRACT OF THE DISCLOSURE

Please insert the following new Abstract:

--An internal combustion engine exhaust device. The device includes a conduit element through which exhaust gases flow. The conduit element includes a housing for mounting a measurement sensor such as an oxygen probe. The housing is formed by a hole extended by an insert produced directly through the conduit element.--

REMARKS

Favorable consideration of this application, as presently amended, is respectfully requested.

By way of the present Preliminary Amendment, Applicants have amended the application to place it in better form for examination. Accordingly, appropriate headings have been added to the various sections of the specification. Unnecessary reference numerals have been removed from the claims. Multiple dependencies have been removed and reinstated as singly dependent claims. A new Abstract has been inserted in standard U.S. format. No new matter has been entered by way of this amendment.

In view of the above, Applicants submit that the application is now in condition for examination. Accordingly, an early and favorable action is respectfully requested.

Respectfully submitted,
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Attorney of Record
Registration No. 25,599
Robert F. Gnuse
Registration No. 27,295

Crystal Square Five - Fourth Floor
1755 Jefferson Davis Highway
Arlington, VA 22202
(703) 413-3000
Fax #: (703) 413-2220
GJM/RFG:jlf

WILLIAM E. BEAUMONT
REGISTRATION NUMBER 30,996

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INTERNAL COMBUSTION ENGINE EXHAUST DEVICE AND METHOD FOR MAKING SAME

The present invention has as its object an exhaust device for internal combustion engines, and a process for manufacturing same. The present invention relates more particularly to an exhaust pipe provided with a housing suitable for mounting a measuring sensor and to the process for making such a housing.

The modern internal combustion engines of motor vehicles are equipped with an electronic control system which adjusts the quantity of fuel injected, the quantity of exhaust gas recirculated, etc. on the basis of preprogrammed strategies and as a function of engine operating conditions.

Among the items of information required by the electronic control systems in order to determine the operating conditions and consequently to adapt the quantity of fuel injected (the degree of opening of the EGR valve, etc.) there are included those relating to the composition and/or to the temperature of the exhaust gases and more particularly to the residual oxygen concentration. These items of information relating to the exhaust gases are delivered by appropriate measuring sensors, which are disposed along the path of the exhaust gases.

In the standard case, the measuring sensors with which the exhaust line is equipped are screwed into internally threaded housings traversing the wall of the

exhaust pipes, in such a way as to bring the analysis cells into contact with the flow of exhaust gases.

In view of the slight thickness of the walls of the exhaust pipes in current use (between 1.5 and 2 mm on average) relative to the diameters of the holes to be made (more than 20 mm), the internally threaded holes in the standard case are formed by appropriate rings which are attached by welding in openings made through the exhaust pipes (SEFG welding or resistance welding).

It became apparent to the Applicant that reliance on welded rings suffers from disadvantages, and in particular from a large percentage of defects in assembly and leaktightness. In fact, the heating during welding tends to deform the internal threads of the rings, which sometimes has the effect either of preventing the sensor from being screwed in or, on the other hand, of preventing the sensor from being unscrewed. In addition, these deformations affect the leaktightness of the assembly and therefore cause burned gases to leak out or, depending on the operating point of the engine, even air to be sucked in, which proves particularly detrimental to the quality of the measurements, especially when the sensor is an oxygen sensor.

The object of the present invention is therefore an exhaust pipe provided with an internally threaded hole for housing a sensor used for analysis of the composition of the gases, this hole being made directly through the wall of the pipe itself without threaded ring attached by welding.

The exhaust device according to the invention for internal combustion engines has a pipe element inside which there flow the exhaust gases, this pipe element having a housing in which a measuring transducer such as an oxygen sensor can be mounted.

According to the invention, the exhaust device is characterized in that the housing designed for mounting of the sensor is formed by a hole prolonged by a bush made directly through the wall of the pipe element.

According to another characteristic of the exhaust device comprising an object of the invention, the pipe element in which there is formed the hole prolonged by a bush is provided with a wall of substantially uniform thickness of between 1 and 3 mm.

According to another characteristic of the exhaust device comprising an object of the invention, the pipe element in which there is formed the hole prolonged by a bush is made of stainless metal alloy.

The present invention also relates to a process for making such a housing. According to the invention, the housing made through the wall of the pipe element itself is obtained from a first flow drilling operation, which comprises drilling through the wall with a tool, a speed and a penetration force adapted to cause melting and upsetting of the material around the tool in proportion to the advance of this tool, until a bush of required height and diameter is obtained.

According to another characteristic of the working process comprising an object of the invention, the tool used for the flow-drilling operation comprises an ogival mandrel.

According to another characteristic of the working process comprising an object of the invention, the first flow-drilling operation is then followed by a second operation of thread tapping by deformation.

The objectives, aspects and advantages of the present invention will be better understood on the basis of the description given hereinafter of a non-limitative practical example of the invention with reference to the attached drawings, wherein:

Fig. 1 is a view in partial axial section of an exhaust pipe according to the invention equipped with a measuring sensor;

Figs. 2 and 3 are detail views of the pipe according to Fig. 1, precisely indicating the process for making the housing of the sensor.

According to the figures, only the component parts necessary for understanding of the invention have been shown. In addition, to simplify reading of the drawings, like elements are designated by like reference symbols from one figure to another.

Referring to Fig. 1, there is shown an exhaust pipe element designated as 1 provided on an exhaust line of an internal combustion engine mounted, for example, on a motor vehicle. This pipe, which is formed by a simple tube of stainless metal alloy with slight thickness (standard steel or aluminum-clad steel) of between 1 and 3 mm, and which is designed, for example, to extend into the exhaust manifold and the catalytic converter, which are not illustrated, is equipped with a housing 2 for a measuring sensor 3, such as a lambda oxygen sensor.

Housing 2 is made directly through the wall of the tube itself, by virtue of the process described according to Figs. 2 and 3.

According to Fig. 2, the first operation comprises machining, by means of flow drilling, a hole 21 prolonged by a bush 22. This hole 21 and this bush 22 are obtained by drilling the wall of the tube with an ogival mandrel or punch 4, of tungsten carbide, for example, turning at high speed, in excess of 500 rpm and preferably between 3000 and 5000 rpm, and driven into the tube with a certain penetration force.

The contact of the rapidly rotating tip produces a large local temperature rise, which transforms the metal to the plastic state. The thrust exerted via the punch by the feed system causes it to penetrate progressively into the hole thus roughed out while upsetting the material around it. The metal flowing in the feed direction forms a neck and that flowing in reverse direction forms a

flange. A collar 41 situated on the upper part of the punch can turn down the metal flowing back at the outside of the tube, thus giving it a plane surface which facilitates support and leaktightness of sensor 3.

In this way an accurately sized hole 21 prolonged by a bush 22 is obtained in a few seconds. In this bush 22 it is then possible to form a thread to permit sensor 3 to be screwed in. According to Fig. 3, this second operation of forming a thread 23 is achieved by thread rolling with a tap.

This operation of chipless thread tapping comprises obtaining the thread by deformation of the material of bush 22. To do so, a tool 5 having an active surface in the form of a screw is used as the tap. The tap operates by rolling, with deformation of the material of the bush, the profile of thread 23 then being impressed by displacement of material from the root of the thread toward the crest. The speed of rotation and the force of penetration of the tap are adapted to produce the desired strength of the threads. It is possible to choose a speed of rotation of the tap ranging preferably between 700 and 1500 rpm, but this is not limitative with respect to the present invention.

Thus, in two relatively simple operations which can be achieved rapidly, it is possible to make an internally threaded housing 2 directly in the wall of exhaust pipe 1 itself, in a manner which is substantially simpler than the prior art, which effectively comprises drilling the

exhaust pipe or cutting it by stamping, trimming this orifice, making a machined sensor support from stainless steel, welding this support onto the pipe, and finally flushing to evacuate the metal particles produced by the preceding operations.

Thus, independently of the advantages in the quality of threading achieved by virtue of the invention compared with the prior art of an attached and welded ring or insert, the present invention offers the additional advantage of being more economical and simpler to use.

Of course, the invention is not limited merely to the described and illustrated embodiment, which was given only by way of example. To the contrary, the invention comprises all techniques equivalent to the described means as well as combinations thereof if they are performed according to the spirit of the invention.

Thus the present invention is not limited solely to making an internally threaded hole for the housing of an oxygen sensor, but it can be applied for making all internally threaded holes machined in the exhaust line of an internal combustion engine and necessary for installation of the different transducers or sensors required for control of the engine and/or for diagnostic evaluation of the device or devices provided in the exhaust line for treatment of the burned gases by catalytic conversion. Similarly, the present invention is also applicable to exhaust pipes having a plurality of concentric walls. In this case, the internally threaded

hole necessary for mounting the transducer is made by performing flow drilling through the different walls.

CLAIMS

[1] An exhaust device for internal combustion engines having a pipe element (1) inside which there flow the exhaust gases, the said pipe element (1) having a housing (2) in which a measuring transducer such as an oxygen sensor can be mounted, characterized in that the said housing (2) is formed by a hole prolonged by a bush (3) made directly through the wall of the said pipe element (1), the said housing (2) being obtained from a first flow-drilling operation followed by a second operation of thread tapping by deformation, the said flow-drilling operation comprising drilling through the wall with a tool, a speed and a penetration force adapted to cause melting and upsetting of the material around the tool in proportion to the advance of this tool, until a bush of required height and diameter is obtained.

[2] An exhaust device for internal combustion engines according to claim 1, characterized in that the said pipe element (1) is provided with a wall of substantially uniform thickness of between 1 and 3 mm.

[3] An exhaust device for internal combustion engines according to any one of claims 1 to 2, characterized in that the said pipe element (1) is provided with a wall made of stainless metal alloy.

[4] A process for making an exhaust device according to any one of claims 1 to 3, characterized in that the said tool comprises an ogival mandrel.

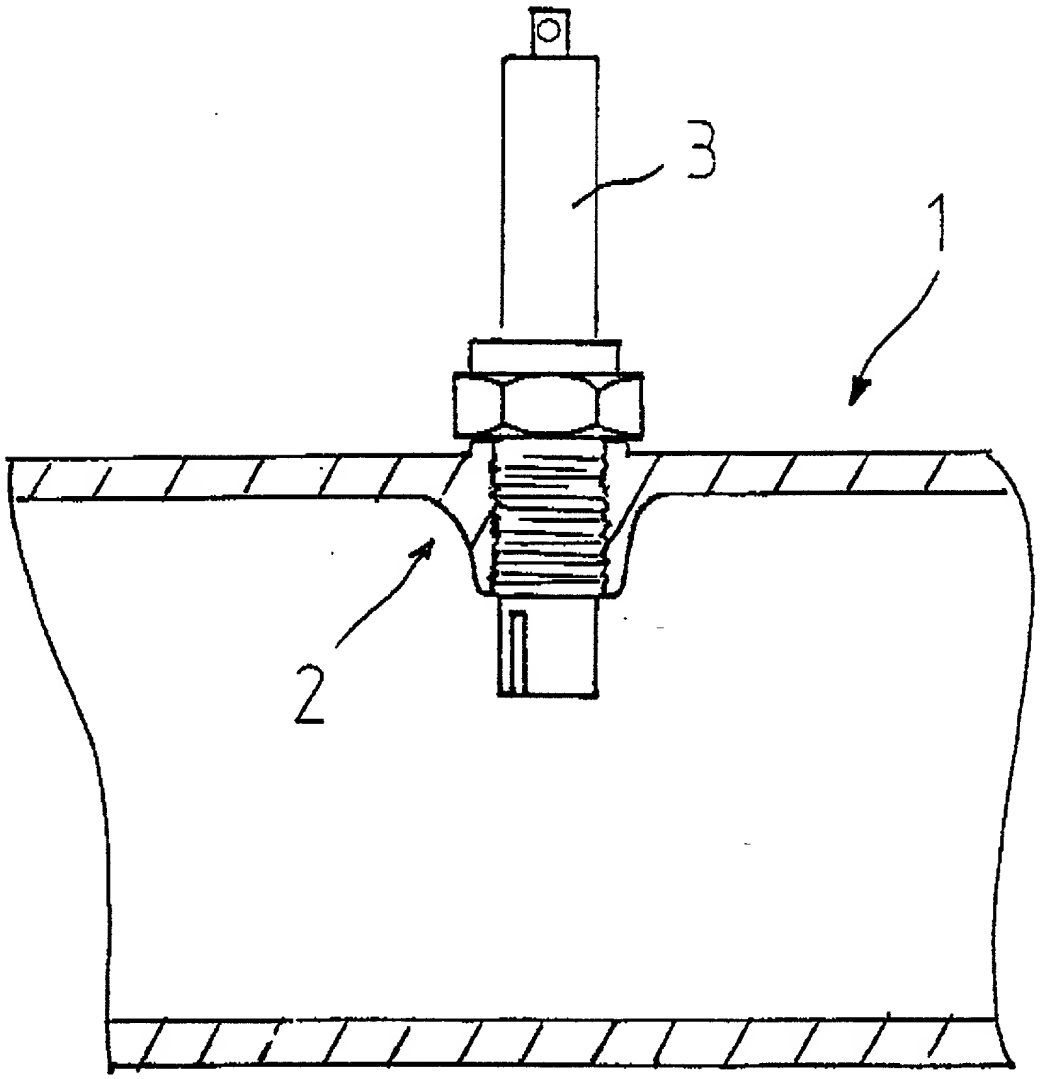


FIG.1

FIG.2

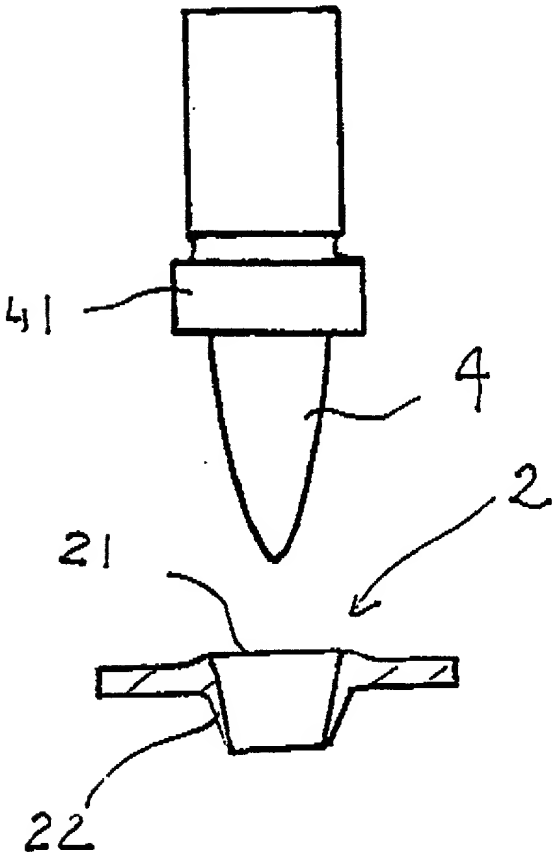
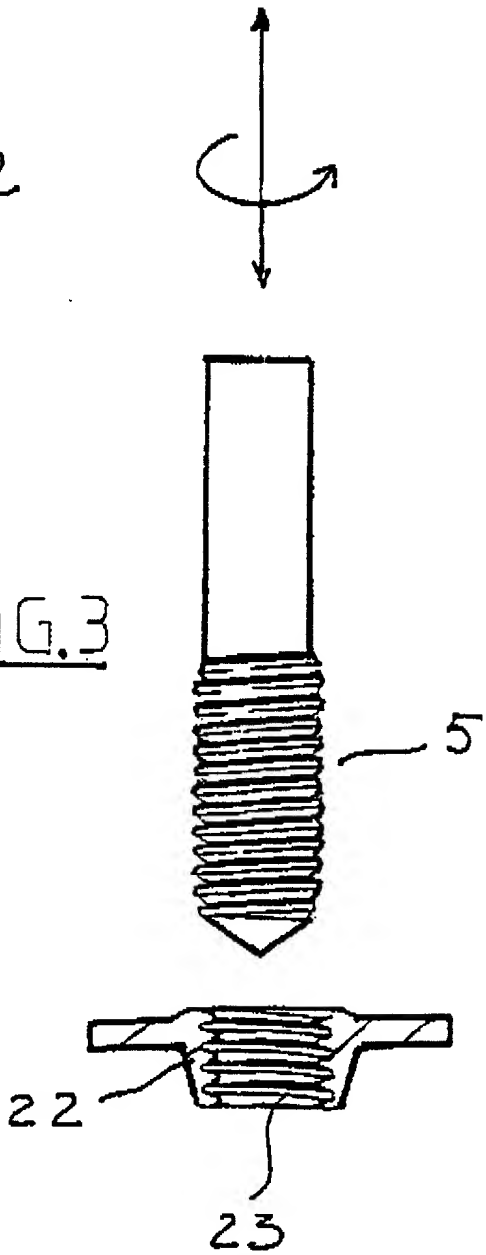


FIG.3



Declaration and Power of Attorney for Patent Application
Déclaration et Pouvoirs pour Demande de Brevet
French Language Declaration

En tant l'inventeur nommé ci-après, je déclare par le présent acte que:

As a below named inventor, I hereby declare that:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom

My residence, post office address and citizenship are as stated next to my name

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

INTERNAL COMBUSTION ENGINE EXHAUST DEVICE AND METHOD FOR MAKING SAME

et dont la description est fournie ci-joint à moins

the specification of which:

☐ ci-joint

☐ a été déposée le _____

sous le numéro de demande des Etats-Unis ou le numéro de demande international PCT

_____ et modifiée le

_____ (le cas échéant).

☐ is attached hereto.

☒ was filed on 12 October 1999

as United States Application Number or PCT International Application Number

09/402,472

_____ and was amended on

_____ (if applicable).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365 (b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, by checking the box, and have also identified below any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior foreign application(s) Demande(s) de brevet antérieure(s) (Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)	Priority Not Claimed Droit de priorité non revendiqué
97/04411	FRANCE	10 April 1997	☒
			☐

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)	(Status) (patented, pending, abandoned) (Statut) (breveté, en cours d'examen, abandonné)
PCT/FR98/00728	10 April 1998	

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIRS· En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuive(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marquees· *(mentionner le nom et le numéro d'enregistrement).*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

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Norman F. Oblon, Reg. No. 24,618; Marvin J. Spivak, Reg. No. 24,913; C. Irvin McClelland, Reg. No. 21,124; Gregory J. Maier, Reg. No. 25,599; Arthur I. Neustadt, Reg. No. 24,854; Richard D. Kelly, Reg. No. 27,757; James D. Hamilton, Reg. No. 28,421; Eckhard H. Kuesters, Reg. No. 28,870; Robert T. Pous, Reg. No. 29,099; Charles L. Gholz, Reg. No. 26,395; William E. Beaumont, Reg. No. 30,996; Robert F. Gnuse, Reg. No. 27,295; Jean-Paul Lavalleye, Reg. No. 31,451; Stephen G. Baxter, Reg. No. 32,884; Robert W. Hahl, Reg. No. 33,893; Richard L. Treanor, Reg. No. 36,379; Steven P. Weihrouch, Reg. No. 32,829; John T. Goolkasian, Reg. No. 26, 142; Richard L. Chinn, Reg. No. 34,305; Steven E. Lipman, Reg. No. 30,011; Carl E. Schlier, Reg. No. 34,426; James J. Kulbaski, Reg. No. 34,648; Richard A. Neifeld, Reg. No. 35,299; J. Derek Mason, Reg. No. 35,270; Surinder Sachar, Reg. No. 34,423; Christina M. Gadiano, Reg. No. 37,628; Jeffrey B. McIntyre, Reg. No. 36,867; Paul E. Rauch, Reg. No. 38,591; William T. Enos, Reg. No. 33,128 and Michael E. McCabe, Jr., Reg. No. 37,182, with full powers of substitution and revocation.

Addresser toute correspondance à:

Send Correspondence to:
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VIRGINIA 22202 U.S.A.

Adresser tout appel téléphonique à·
(nom et numéro de téléphone)

Direct Telephone calls to: *(name and telephone number)*

(703) 413-3000

Nom complete de l'unique ou premier inventeur 1-00	Full name of sole or first inventor Daniel CELERIER
Signature de l'inventeur Date	Inventor's signature Date 09/11/99
Domicile	Residence 42, chemin de Montigny, F-95220 Herblay, FRANCE FRX
Nationalité	Citizenship FRANCE
Adresse Postale	Post Office Address same as above
Nom complete du second co-inventeur, le cas echeant 2-00	Full name of second joint inventor, if any Patrick Francois MARKIEWSKI
Signature de l'inventeur Date	Second inventor's signature Date 9/11/99
Domicile	Residence Residence du Parc d'Elancourt 6, Impasse des Coudrays, F-78990 Elancourt
Nationalité	FRANCE Citizenship: FRANCE FRX
Adresse Postale	Post Office Address same as above

(Fournier les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)

French Language Declaration

Nom complete de l'unique ou premier inventeur 3-00	Full name of third joint inventor, if any Alain PIERDET
Signature de l'inventeur Date	Third inventor's signature Date 09/11/99
Domicile	Residence 5, rue Lionel Terray, F-93110 Rosny sous Bois, FRANCE
Nationalité	Citizenship FRANCE FRX
Adresse Postale	Post Office Address same as above
Nom complete du second co-inventeur, le cas echeant	Full name of fourth joint inventor, if any
Signature de l'inventeur Date	Fourth inventor's signature Date
Domicile	Residence
Nationalité	Citizenship
Adresse Postale	Post Office Address
Nom complete du second co-inventeur, le cas echeant	Full name of fifth joint inventor, if any
Signature de l'inventeur Date	Fifth inventor's signature Date
Domicile	Residence
Nationalité	Citizenship
Adresse Postale	Post Office Address
Nom complete du second co-inventeur, le cas echeant	Full name of sixth joint inventor, if any
Signature de l'inventeur Date	Sixth inventor's signature Date
Domicile	Residence
Nationalité	Citizenship
Adresse Postale	Post Office Address

(Fournier les mêmes renseignements et la signature de tout co-inventeur supplémentaire)

(Supply similar information and signature for third and subsequent joint inventors)